

MOSFET PERFORMANCE IMPROVEMENT USING DEFORMATION IN SOI STRUCTURE

Abstract

A method for manufacturing a semiconductor device is provided. The method includes forming a semiconductor layer on a substrate. The first region of the substrate is expanded to push up the first portion of the semiconductor layer, thereby applying tensile stress to the first portion. The second region of the substrate is compressed to pull down the second portion of the semiconductor layer, thereby applying compressive stress to the second portion. An N type device is formed over the first portion of the semiconductor layer, and a P type device is formed over the second portion of the semiconductor layer.